F.19 Computer Science - Grades 9-10

NEW MEXICO Public Education Department

PROVIDER/PUBLISHER / MATERIAL INFORMATION (TO BE COMPLETED BY PROVIDER/PUBLISHER)

Provider/Publisher / Imprint:		Grade(s):	
Title of Student Edition:		Student Edition ISBN:	
Title of Teacher Edition:		Teacher Edition ISBN:	
Title of SE Workbook:		SE Workbook ISBN:	

PUBLISHER CITATION VIDEO: Must be viewed before starting the review of this set of materials.

Citation Video Link:			
Citation video certification:	I certify that I have viewed the citation video for this specific publisher and set of materials.		
Digital Material Log In (if applicable):	Website:	Username:	Password:

SCORING (TO BE COMPLETED BY REVIEWER AND FACILITATOR)

Reviewer Number:		Date:	

Section 1: Standards Review: Computer Science

Reviewer directions for Computer Science Standards Review:	**Columns D-G:** The provider/publisher will provide a citation from the **Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material)** (print and/or digital) for each standard. Review the cited material and score the material by determining the degree to which it meets the standard:
	  o M = Meets the standard
	  o P = Partially meets the standard
	  o D = Does not meet the standard
	Evidence for the publisher citations is required *only* if you score the materials with a D. For your evidence for each standard that scores a D, choose one of the options from the dropdown menu in Column G. If the reason for scoring the materials with a D is not one of the dropdown options, enter your own evidence statement in the cell in Column G.
	  o Each score cell (column E) will turn green as you score the materials.
		Columns H-K: The provider/publisher will provide a citation from the **Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material)** (print and/or digital) for each standard. Review the cited material, score the material by determining the degree to which it meets the standard, and **provide evidence from the material to support your determination:**
		  o M = Meets the standard
		  o P = Partially meets the standard
		  o D = Does not meet the standard
		  o Each score cell (column I) and evidence cell (column K) will turn green as you score the materials.	

Criteria #	Identifier	**F.20 Computer Science Grades 9-10**	Provider/Publisher Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Provider/Publisher Citation	Score	Required: Reviewer's Evidence for Publisher Citation	Comments, other citations, notes
LEVEL 3A: GRADES 9-10 COMPUTER SCIENCE STANDARDS									
COMPUTING SYSTEMS									
1	3A-CS-01	Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.							
2	3A-CS-02	Compare levels of abstraction and interactions between application software, system software, and hardware layers.							
3	3A-CS-03	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.							
NETWORKS AND THE INTERNET									
4	3A-NI-04	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.							
5	3A-NI-05	Give examples to illustrate how sensitive data can be affected by malware and other attacks.							
6	3A-NI-06	Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.							

7	**3A-NI-07**	Compare various security measures, considering tradeoffs between the usability and security of a computing system.						
8	**3A-NI-08**	Explain tradeoffs when selecting and implementing cybersecurity recommendations.						
DATA AND ANALYSIS								
9	**3A-DA-09**	Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.						
10	**3A-AP-10**	Evaluate the tradeoffs in how data elements are organized and where data is stored.						
11	**3A-AP-11**	Create interactive data visualizations using software tools to help others better understand real-world phenomena.						
12	**3A-AP-12**	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.						
ALGORITHMS AND PROGRAMMING								
13	**3A-AP-13**	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.						
14	**3A-AP-14**	Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.						
15	**3A-AP-15**	Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.						
16	**3A-AP-16**	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.						
17	**3A-AP-17**	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.						
18	**3A-AP-18**	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.						
19	**3A-AP-19**	Systematically design and develop programs for broad audiences by incorporating feedback from users.						

20	3A-AP-20	Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.						
21	3A-AP-21	Evaluate and refine computational artifacts to make them more usable and accessible.						
22	3A-AP-22	Design and develop computational artifacts working in team roles using collaborative tools.						
23	3A-AP-23	Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.						
IMPACTS OF COMPUTING								
24	3A-IC-24	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.						
25	3A-IC-25	Test and refine computational artifacts to reduce bias and equity deficits.						
26	3A-IC-26	Demonstrate ways a given algorithm applies to problems across disciplines.						
27	3A-IC-27	Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.						
28	3A-IC-28	Explain the beneficial and harmful effects that intellectual property laws can have on innovation.						
29	3A-IC-29	Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.						
30	3A-IC-30	Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.						

Section 2: Computer Science Content Review									

| Reviewer directions for Computer Science Content Review: | **Columns C-F:** The provider/publisher will provide a citation from the **Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) (print and/or digital)** for each criterion. Review the cited material and score the material by determining the degree to which it meets the criterion:
o M = Meets the criterion
o P = Partially meets the criterion
o D = Does not meet the criterion
Evidence for the publisher citations is required *only* if you score the materials with a D. For your evidence for each criterion that scores a D, choose one of the options from the dropdown menu in Column F. If the reason for scoring the materials with a D is not one of the dropdown options, enter your own evidence statement in the cell in Column F.
o Each score cell (column D) will turn green as you score the materials. | | | **Columns G-J:** The provider/publisher will provide a citation from the **Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material)** (print and/or digital) for each criterion. Review the cited material, score the material by determining the degree to which it meets the criterion, and **provide evidence from the material to support your determination:**
o M = Meets the criterion
o P = Partially meets the criterion
o D = Does not meet the criterion
o Each score cell (column H) and evidence cell (column J) will turn green as you score the materials. | | |

Criteria #	Grades 9-12 Computer Science Content Criteria	Provider/Publisher Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Provider/Publisher Citation	Score	Required: Reviewer's Evidence for Publisher Citation	Comments, other citations, notes
FOCUS AREA 1 COMPUTATIONAL CONCEPTS **Instructional materials provide strategies to develop students' skills that are crucial to understanding computational concepts,** **including sequencing, looping, parallelism, events, conditionals, operators, and data.**								
1	Instructional materials provide strategies for students to design and implement algorithms using a. sequencing of instructions; b. conditional execution; and c. iteration.							
2	Instructional materials provide strategies for students to design and implement algorithms that use sequence and selection including: nested Ifs (e.g. if, if/else, if, switch case); nested Loops (e.g. for, for each, while, do while); and Iteration and recursion.							
3	Instructional materials provide strategies for students to create computational models that represent the relationships among different elements of data collected from a process.							

4	Instructional materials provide strategies for students to identify mathematical concepts (e.g. random number generation, vocabulary) related to computer science and to recognize the similarities and differences between math and computer science algorithms.						
FOCUS AREA 2 COMPUTATIONAL PRACTICES: **Instructional materials provide strategies to develop students' skills that are crucial to understanding computational practices,** **including experimenting and iterating; testing and debugging; and reusing and remixing.**							
5	Instructional materials provide strategies for students to create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.						
6	Instructional materials provide strategies for students to evaluate algorithms in their efficiency, correctness, and clarity by using a series of test cases to verify that the program performs according to its design specification.						
FOCUS AREA 3 COMPUTATIONAL PERSPECTIVES: **Instructional materials provide strategies to develop students' skills that are crucial to understanding computational** **perspectives, including expressing, connecting, and questioning.**							
7	Instructional materials provide strategies for students to create a computational artifact for practical intent, personal expression, or to address a societal issue.						
8	Instructional materials provide strategies for students to explore and explain advancing and emerging technologies and predict how computational innovations will revolutionize aspects of our culture based on knowledge of the historical timeline of computers and technology.						
FOCUS AREA 4 ACCESSIBILITY AND EQUITY:							
9	Instructional materials provide all students (e.g. those who read below grade level, students with special needs, gifted students, and ELL) with extensive opportunities to encounter and comprehend grade-level and complex concepts within the scope of computer science.						
FOCUS AREA 5 TEACHER SUPPORT:							
10	Instructional materials provide a detailed list of requisite software, libraries, hardware and tools.						

Section 2: All Content Review				

PROVIDERS/PUBLISHERS:
• The All Content tab will be completed solely by the reviewers. They will score each criterion and provide evidence for their score
   from the material based on their overall review of the material. You will not provide any citations for this tab.
• The material will be scored for alignment with each criterion as "Meets expectations," "Partially meets expectations," or
   "Does not meet expectations".				

Reviewer directions for All Content Review:		**Columns C-F: The criteria presented on this tab will be scored and evidence provided based on your overall review of the materials.** Review the material, score the material by determining the degree to which it meets each criterion, and **provide evidence from the material to support your determination:**
		  o M = Meets the criterion
		  o P = Partially meets the criterion
		  o D = Does not meet the criterion
		Your evidence should speak to where in the materials you have found the evidence as well as what is in the materials that supports the score given.
		  *o Each score cell (column C) and evidence cell (column E) will turn green
		    as you score the materials.*
		  o Any cells grayed out do not require a score or evidence.		

Criteria #	All Content Criteria	Score	Required: Reviewer's Evidence from Material	Comments, citations, notes
FOCUS AREA 1 RESOURCES AND SUPPORTS FOR TEACHERS AND STUDENTS: **Instructional materials provide teacher resources to support planning and supports for all students.**				
1	Instructional materials provide a list of lessons in the Teacher Edition or teacher-facing core material (in print or clearly distinguished/accessible as a teacher-facing core material in digital materials), cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter, and unit.			
2	Instructional materials integrate opportunities for digital learning, including interactive digital components, and digital assessment.			
3	Instructional materials incorporate features that aid students and teachers in making meaning of the text.			
4	Instructional materials provide appropriate linguistic support for English Learners and Culturally and Linguistically Diverse students, and accommodations and modifications for other special populations that will support their regular and active participation in learning content.			
FOCUS AREA 2 ASSESSMENT: **Instructional materials offer teachers a variety of assessment resources and** **tools to collect ongoing data about student progress related to the standards.**				

5	Instructional materials provide a variety of assessments that measure student progress in all strands of the standards for the content under review. *(Adopted New Mexico Content Standards for 2023: 7-12 Career and Technical Education Standards; CSTA K-12 Computer Science Standards; K-12 Health Education Standards; K-12 Physical Education Standards)*		
6	Instructional materials provide multiple formative and summative assessments, clearly defining which standards are being assessed through content and language objectives.		
7	Instructional materials provide appropriate assessment alternatives for English Learners, Culturally and Linguistically Diverse students, advanced students, and special needs students.		
FOCUS AREA 3 CULTURAL AND LINGUISTIC PERSPECTIVES AND RESPONSIVENESS: **Instructional materials represent a variety of cultural and linguistic perspectives** **and highlight diversity in culture and language through multiple perspectives.**			
8	Instructional materials inform culturally and linguistically responsive pedagogy by affirming students' backgrounds in the materials themselves and in the student discussions.		
9	Instructional materials include tools and resources to relate the content area appropriately to diversity in culture and language.		
10	Instructional materials include tools and resources that demonstrate multiple perspectives in a specific concept.		
11	Instructional materials engage students in critical reflection about their own lives and societies, including cultures past and present in New Mexico.		
12	Instructional materials address multiple ethnic descriptions, interpretations, or perspectives of events and experiences.		